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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
MANOSKEY, JOSEPH D

ART UNIT	PAPER NUMBER
2113	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,038	CAMPBELL ET AL.	
	Examiner	Art Unit	
	Joseph Manoskey	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "118" of Fig. 1, even though the specification is missing page 8, see objection to specification below, the section of the section of the specification that describes Fig. 1 is intact and it is believed that reference "118" is missing.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

The specification is missing page 8.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Frey, Jr. et al., U.S. Patent 5,201,044, hereinafter referred to as "Frey".

5. Referring to claim 1, Frey teaches a file-based transaction system that includes transaction log, this is interpreted as a method for logging file system operation (See Col. 1, lines 9-12). Frey discloses the system performing file transactions using user-inaccessible software, this is interpreted as receiving a request to perform a file system operation and making a call to an underlying file system to perform the file system operation (See Col. 3, lines 22-43). Finally Frey teaches the use of a transaction log file to keep track of the progress of all pending transactions and the log file can be used to reconstruct in case of a failure of the system, this is interpreted as logging the file system operation to a log within a log device to facilitate recovery of the file system

operation in the event of a system failure before the file system operation is committed to non-volatile storage (See Col. 4, line 53 to Col. 5, line 10).

6. Referring to claim 2, Frey discloses the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35).

7. Referring to claim 3, Frey teaches the use of a commit procedure, this is interpreted as freezing ongoing activity and making a call to the file system to flush memory buffers to non-volatile storage, which guarantees operations are committed to non-volatile storage and later unfreezing ongoing activity (See Col. 5, lines 23-33). Frey also teaches that all old completed transactions are discarded, this is interpreted as removing outstanding file system operations from the log (See Col. 5, lines 11-12).

8. Referring to claim 4, Frey discloses a recovery procedure that involves reading the log file, this is interpreted as upon a subsequent computer system startup examining the log within the log device (See Col. 9, lines 38-39). Frey also teaches the log file being used to reconstruct the system, this is interpreted as replaying any file system operations from the log that have not been committed to non-volatile storage (See Col. 5, lines 4-7).

9. Referring to claim 5, Frey teaches defining the sequence of actions to be carried out in the transaction, this is interpreted as checking for dependencies between file

system operations and ongoing file system operations, and if detected ensuring completion is done in an order that satisfies the dependencies (See Col. 5, lines 41-43).

10. Referring to claim 6, Frey discloses the types of transactions including a distributed type of transactions that includes several nodes, this is interpreted as request to perform the file system operation is received at a primary server in a highly available system and the log device includes a secondary server in the highly available system that acts as a backup for the primary server (See Col. 5, lines 53-56).

11. Referring to claim 7, Frey teaches the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35), and defining the sequence of actions to be carried out in the transaction, this is interpreted as associating the file system operation with a transaction identifier for a set of related file system operations and wherein logging the file system operation involves storing the file system operation with the transaction identifier to the log device (See Col. 5, lines 41-43).

12. Referring to claim 8, Frey discloses logging transactions and defining the sequence of actions to be carried out in the transaction, (See Col. 5, lines 3-4 and lines 41-43). This is interpreted as determining if the file system operation belongs to a subset of file system operations that are subject to logging and if so, logging the file system operation.

13. Referring to claim 9, Frey teaches subset including operations such as parity update (See Col. 5, lines 41-43). A parity update will be deferent every time you perform the operation because the data is different, this is interpreted as the operation being non-idempotent.

14. Referring to claims 10 and 11, Frey teaches the log file spanning both volatile and non-volatile memory (See Col. 3, lines 31-32).

15. Referring to claim 12, Frey teaches a file-based transaction system that includes a transaction log and software for performing the system, this is interpreted as a computer-readable storage medium storing instructions when executed by a computer to perform a method for logging file system operation (See Col. 1, lines 9-12). Frey discloses the system performing file transactions using user-inaccessible software, this is interpreted as receiving a request to perform a file system operation and making a call to an underlying file system to perform the file system operation (See Col. 3, lines 22-43). Finally Frey teaches the use of a transaction log file to keep track of the progress of all pending transactions and the log file can be used to reconstruct in case of a failure of the system, this is interpreted as logging the file system operation to a log within a log device to facilitate recovery of the file system operation in the event of a system failure before the file system operation is committed to non-volatile storage (See Col. 4, line 53 to Col. 5, line 10).

16. Referring to claim 13, Frey discloses the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35).

17. Referring to claim 14, Frey teaches the use of a commit procedure, this is interpreted as freezing ongoing activity and making a call to the file system to flush memory buffers to non-volatile storage, which guarantees operations are committed to non-volatile storage and later unfreezing ongoing activity (See Col. 5, lines 23-33). Frey also teaches that all old completed transactions are discarded, this is interpreted as removing outstanding file system operations from the log (See Col. 5, lines 11-12).

18. Referring to claim 15, Frey discloses a recovery procedure that involves reading the log file, this is interpreted as upon a subsequent computer system startup examining the log within the log device (See Col. 9, lines 38-39). Frey also teaches the log file being used to reconstruct the system, this is interpreted as replaying any file system operations from the log that have not been committed to non-volatile storage (See Col. 5, lines 4-7).

19. Referring to claim 16, Frey teaches defining the sequence of actions to be carried out in the transaction, this is interpreted as checking for dependencies between file system operations and ongoing file system operations, and if detected ensuring completion is done in an order that satisfies the dependencies (See Col. 5, lines 41-43).

20. Referring to claim 17, Frey discloses the types of transactions including a distributed type of transactions that includes several nodes, this is interpreted as request to perform the file system operation is received at a primary server in a highly available system and the log device includes a secondary server in the highly available system that acts as a backup for the primary server (See Col. 5, lines 53-56).

21. Referring to claim 18, Frey teaches the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35), and defining the sequence of actions to be carried out in the transaction, this is interpreted as associating the file system operation with a transaction identifier for a set of related file system operations and wherein logging the file system operation involves storing the file system operation with the transaction identifier to the log device (See Col. 5, lines 41-43).

22. Referring to claim 19, Frey discloses logging transactions and defining the sequence of actions to be carried out in the transaction, (See Col. 5, lines 3-4 and lines 41-43). This is interpreted as determining if the file system operation belongs to a subset of file system operations that are subject to logging and if so, logging the file system operation.

23. Referring to claim 20, Frey teaches subset including operations such as parity update (See Col. 5, lines 41-43). A parity update will be deferent every time you

perform the operation because the data is different, this is interpreted as the operation being non-idempotent.

24. Referring to claims 21 and 22, Frey teaches the log file spanning both volatile and non-volatile memory (See Col. 3, lines 31-32).

25. Referring to claim 23, Frey teaches a file-based transaction system that includes a transaction log (See Col. 1, lines 9-12). Frey discloses the system performing file transactions using user-inaccessible software, this is interpreted as receiving a request to perform a file system operation and making a call to an underlying file system to perform the file system operation (See Col. 3, lines 22-43). Finally Frey teaches the use of a transaction log file to keep track of the progress of all pending transactions and the log file can be used to reconstruct in case of a failure of the system, this is interpreted as logging the file system operation to a log within a log device to facilitate recovery of the file system operation in the event of a system failure before the file system operation is committed to non-volatile storage (See Col. 4, line 53 to Col. 5, line 10).

26. Referring to claim 24, Frey discloses the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35).

27. Referring to claim 25, Frey teaches the use of a commit procedure, this is interpreted as freezing ongoing activity and making a call to the file system to flush

memory buffers to non-volatile storage, which guarantees operations are committed to non-volatile storage and later unfreezing ongoing activity (See Col. 5, lines 23-33). Frey also teaches that all old completed transactions are discarded, this is interpreted as removing outstanding file system operations from the log (See Col. 5, lines 11-12).

28. Referring to claim 26, Frey discloses a recovery procedure that involves reading the log file, this is interpreted as upon a subsequent computer system startup examining the log within the log device (See Col. 9, lines 38-39). Frey also teaches the log file being used to reconstruct the system, this is interpreted as replaying any file system operations from the log that have not been committed to non-volatile storage (See Col. 5, lines 4-7).

29. Referring to claim 27, Frey teaches defining the sequence of actions to be carried out in the transaction, this is interpreted as checking for dependencies between file system operations and ongoing file system operations, and if detected ensuring completion is done in an order that satisfies the dependencies (See Col. 5, lines 41-43).

30. Referring to claim 28, Frey discloses the types of transactions including a distributed type of transactions that includes several nodes, this is interpreted as request to perform the file system operation is received at a primary server in a highly available system and the log device includes a secondary server in the highly available system that acts as a backup for the primary server (See Col. 5, lines 53-56).

31. Referring to claim 29, Frey teaches the use unique identification numbers for the transactions in the log (See Col. 5, lines 34-35), and defining the sequence of actions to be carried out in the transaction, this is interpreted as associating the file system operation with a transaction identifier for a set of related file system operations and wherein logging the file system operation involves storing the file system operation with the transaction identifier to the log device (See Col. 5, lines 41-43).

32. Referring to claim 30, Frey discloses logging transactions and defining the sequence of actions to be carried out in the transaction, (See Col. 5, lines 3-4 and lines 41-43). This is interpreted as determining if the file system operation belongs to a subset of file system operations that are subject to logging and if so, logging the file system operation.

33. Referring to claim 31, Frey teaches subset including operations such as parity update (See Col. 5, lines 41-43). A parity update will be deferent every time you perform the operation because the data is different, this is interpreted as the operation being non-idempotent.

34. Referring to claims 32 and 33, Frey teaches the log file spanning both volatile and non-volatile memory (See Col. 3, lines 31-32).

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are closely related examples of logging systems.

U.S. Patent 6,065,018 to Beier et al.

U.S. Patent 6,553,392 to Mosher, Jr. et al.

U.S. Patent 6,553,509 to Hanson et al.

U.S. Patent 6,584,582 to O'Connor

U.S. Patent 6,658,590 to Sicola et al.

U.S. Patent 6,732,124 to Koseki et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Manoskey whose telephone number is (703) 308-5466. After approximately October 13, the examiner can be reached at the new Alexandria telephone number, (571) 272-3648. The examiner can normally be reached on Mon.-Fri. (8am to 4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JDM
September 28, 2004

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